III. REMARKS

In the Office Action, Claims 1 and 15 were rejected under double patenting on U.S. patent 6,738,423 for reasons set forth in the Action. It is requested that a response to the rejection of double patenting be held in abeyance until an allowable wording of the claims has been determined.

Claims 1-2 and 5-14 were rejected under 35 U.S.C. 102 as being anticipated by Bist (US 6,249,546), and claims 3-4 and 15-20 were rejected under 35 U.S.C. 103 as being unpatentable over the combined teachings of Bist and Yu (US 6, 256,347) for reasons set forth in the Office Action.

With respect to the rejections under 35 U.S.C. 102 and 103, the following argument is presented to distinguish the claimed subject matter from the teachings of the cited art, thereby to overcome the rejections, and to show the presence of allowable subject matter in the claims.

In the rejections of claims 1-2 and 5-14 (directed to encoding) based on the teachings of Bist, the examiner relies on various passages of Bist to teach motion coefficients (page 4 of the Action). However, a study of these passages shows no teaching of motion coefficients in Bist. There is a teaching of quantization in Bist. The word "motion" does not appear in any of the drawing figures of Bist. A key element in the teaching of Bist is found in a passage cited by the examiner (col. 6, beginning at line 9), wherein there is a description of signal processing, and Bist states that the quantizer selection is based on a determination of which quantizer provides the best distortion and bit rate characteristics for the portion of the video signal being coded.

It is noted that the signal processing technique of Bist is generally applicable to frames of video data, even in the absence of motion between frames. Therefore, there is no basis for the examiner to infer that Bist is providing a specific teaching of how to treat motion in the absence of a specific mention of motion coefficients.

Present claim 1 recites a modeling of motion using motion coefficients, and a quantizing of motion coefficients. The motion coefficients are mentioned at several locations in the independent claims, and motion is discussed at numerous locations in the specification (for example, on each of the first 14 pages of the specification). Thus, motion is an important aspect of the claimed subject matter. Accordingly, it is urged that there is insufficient basis in the cited art to support the rejections of claim 1 and its dependent claims.

In the rejections of claims 15-20 (directed to decoding) based on the combined teachings of Yu in view of Bist, the examiner relies on the teachings of Yu (Fig. 10). However, Fig. 10 with accompanying text at columns 15-17 clearly show a bypassing of the inverse quantizer by the motion vectors to accomplish the motion compensation. There is no specific teaching of a processing of a motion vector by inverse quantization.

Claim 15 specifically calls for: (1) performing inverse quantization of the quantized motion coefficients using an inverse quantizer corresponding to the selected motion coefficient quantizer, and (2) determining the motion of the picture elements using the inverse quantized motion coefficients and certain basis functions. In view of the foregoing discussion of the failure of the passages cited by the examiner to teach a processing of a motion vector by inverse quantization, there is no basis for the examiner to infer that Yu, considered alone or in combination with Bist, is providing a specific teaching of inverse quantization of a motion vector.

It is noted also that a motion vector is defined in the present specification on page 2 at line 23. It is clear from the mathematics of Bist and Yu that they are not providing the same processing of vectors as is taught in the present specification for the treatment of motion, both in the encoder and the decoder aspects of the present invention.

Accordingly, it is urged that there is insufficient basis in the cited art to support the rejections of claim 15 and its dependent claims. The rejections of claims 3-4 based on the combined teachings of Bist in view of Yu fail for the reasons advanced for claim 1.

Claims 33-39 are new. The newly presented claims 33, 35, 37 and 39 are independent claims corresponding to claim categories: method of decoding, decoder, software program and receiver for the method of decoding, respectively. The newly presented claims 34, 36 and 38 are dependent claims from claims 33, 35 and 37 respectively.

Applicants respectfully submit that the newly presented sets of claims are patentable over Bist (6,249,546) and Yu (6,256,347) when considered separately and in combination.

Bist (6,249,546) presents a video coding system comprising an adaptive quantization for selection of one quantizer, for each video frame or frame portion, from a group of quantizers, where each quantizer is a set of predefined quantizer values. The selection of the quantizer is based on a formula which takes into account the distortion and bit rate characteristics of each quantizer. A similar formula, based on the distortion and bit rate characteristics, is used to select the particular quantizer value within the chosen quantizer for each video signal value being coded. As becomes clear from reading the background section of the patent and, in particular, between column 2, lines 41 and column 4, line 13, the adaptive quantization in question is performed on "transform coefficients" representative of the spatial frequency content of a digital picture signal and are generated by performing an "orthogonal transform" on the digital picture signal input to the video encoder. As is well known in the video coding art, and further mentioned by reference between lines 17 and 43 of column 2, an example of such an orthogonal transform is the Discrete Cosine Transform (DCT).

In the newly amended claims, the motion coefficients to be inverse quantised are different from "transform coefficients". As described on page 4, between lines 4 and 17 of the present invention, "motion coefficients" are the coefficients of a model that describes a motion vector. They are not, therefore representative of a spatial frequency distribution (e.g. within a picture) of a digital video signal, but are rather representative of motion between pictures of a digital video signal. In the newly amended claims, the

determination of the quantisation applied to motion coefficients is adapted based on quantization applied to transform coefficients. Since Bist does not even mention the modelling of a motion vector using motion coefficients and consequently does not discuss issues relating to the determination of quantisation of such coefficients.

Yu 6,256,347 discloses a memory efficient compression algorithm, wherein the luminance and chrominance values representing a decoded image is recompressed to a predetermined number of bits per pixel. The encoded video data is firstly decoded by the well known mechanisms in the video coding art, mentioned by reference between lines 43 and 51 of column 4. The quantization in question, lines 52 to 60 of column 4, is performed on the decoded samples of luminance and chrominance values. Yu does not even mention the modelling of a motion vector using motion coefficients and consequently does not discuss issues relating to the quantisation of such coefficients.

Thus applicants respectfully submit that Bist and Yu when considered separately and in combination can not be considered to anticipate the newly amended independent claims, which describe explicitly adaptation of quantisation applied to motion coefficients. In the newly amended claims, the determination of the quantisation applied to motion coefficients is adapted based on quantization applied to transform coefficients.
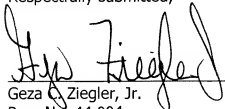
For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

The Commissioner is hereby authorized to charge payment for the three-month extension of time ($1,020) and the additional claims fee (7 new claims including 4

independent $1,150) as well as any other fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,

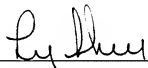_Geza C. Ziegler, Jr._
Reg. No. 44,004

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Person Making Deposit